

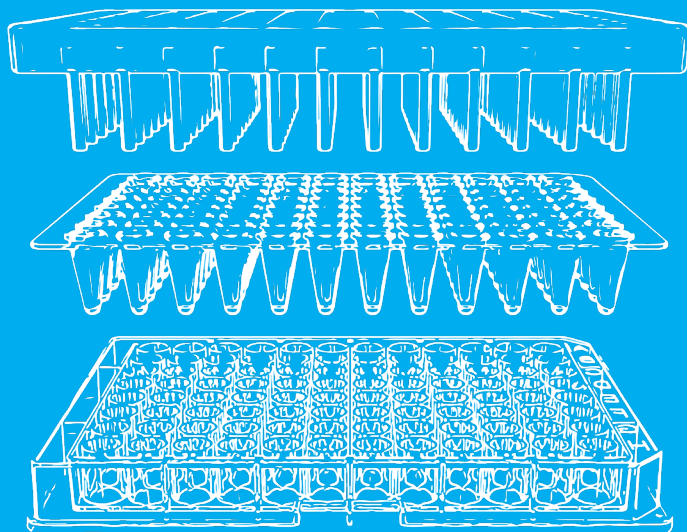
making a difference

INSTRUCTIONS FOR USE

96 WELL MULTI-MAGPEN

Item No.: 657896

Your smart assistant for
3D cell culture transfer



MULTI-MAGPEN INSTRUCTION MANUAL

Thank you for purchasing this Greiner Bio-One product. The Multi-MagPen is used to transfer, collect, organize, or layer magnetic 3D cell cultures without disrupting their tissue architecture. The Multi-MagPen uses a simple “pick-up-and-drop” method to reliably transfer 3D cell cultures between microwell plates.

The magnets in this kit are strong, can damage electronics, and cause injury if not handled correctly. Read the safety precautions below carefully to ensure correct handling of the magnets.

SAFETY PRECAUTIONS

To guarantee problem free and safe operation of the Multi-MagPen please read these safety precautions before using.



- / The magnet plates contain strong neodymium magnets that must be handled with extreme care.
- / When storing magnets in proximity to other magnets or materials that are attracted to magnets, take precautions so that objects do not slam together. Neodymium magnets are brittle and can shatter or crack, sometimes producing dangerous fragments moving at high speeds. Fingers can also be severely pinched between magnets or between magnets and certain metals.
- / Keep the magnetic drives spatially separated and DO NOT put the drives together at any time. Due to the magnetic force, placing them in close proximity can cause them to “crash” together, resulting in damage to the drive magnets and/or structure.
- / Persons with pacemakers or similar medical devices should not come near Neodymium magnets.
- / Neodymium magnets can damage magnetic media such as credit cards, magnetic ID cards, televisions, computer memory and computer monitors. Keep magnets at least 30 cm (12 inch.) from these devices away.
- / Neodymium magnets should not be burned or machined. They will lose their magnetic properties if heated above 80 °C (175 °F). DO NOT AUTOCLAVE the magnetic drives.
- / Neodymium magnets are not toys. The magnetic drives should only be used for their intended purpose. Children should not be allowed to play with them.

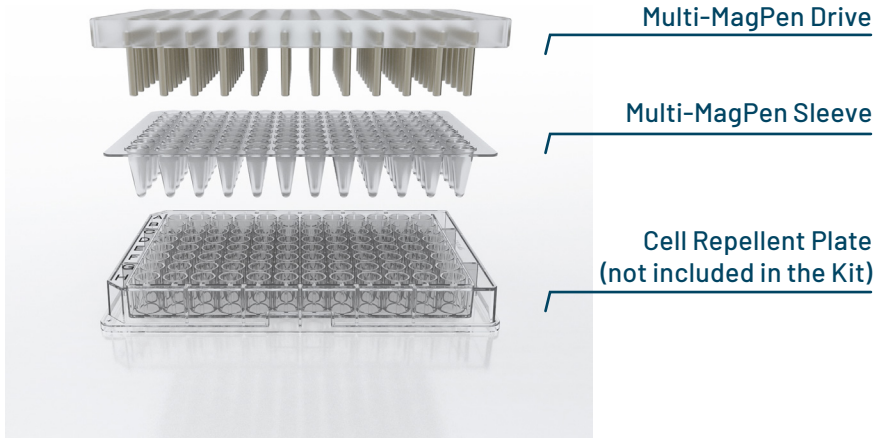
1/ INTENDED USE

The Multi-MagPen is a general laboratory product for 3D cell culture to be used by qualified personnel in a laboratory environment. It is intended for research use only and not approved for human or animal use.

2/ MATERIALS

MULTI-MAGPEN KIT & SLEEVE

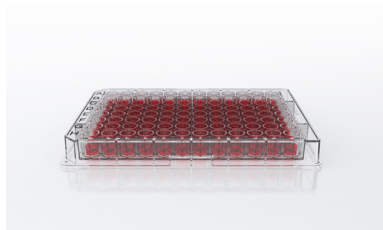
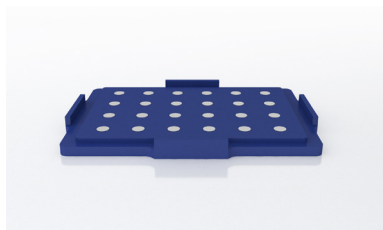
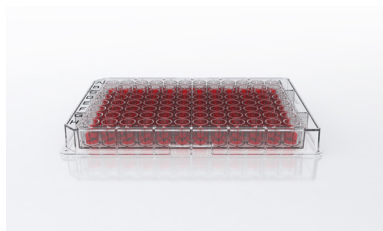
Item No.	Product Description	Content/Packaging
657896	96 Well Multi-MagPen Kit	96 Well Multi-MagPen Drive, transparent, non-sterile, 1 pcs./box, 96 Well Multi-MagPen Sleeve, PP, transparent, sterile, Cell Repellent, 1 pcs./bag, 2 pcs./box
651596	96 Well Multi-MagPen Sleeve	96 Well Multi-MagPen Sleeve, PP, transparent, Cell Repellent, 1 pcs./bag, 10 pcs./box



3/ INSTRUCTIONS

Instructions to transfer 3D cell cultures using the 96 Well Multi-MagPen

To assure sterility clean the Multi-MagPen Drive with 70 % ethanol. DO NOT autoclave the Multi-MagPen Drive (see also safety precautions). During the cellular transfer process, the Multi-MagPen Drive is inserted into the sterile Multi-MagPen Sleeve. Hence the Multi-MagPen Drive is never in direct contact with the cell culture itself.



Prepare Donor Plate

To assure liquid contact and reliable attachment of the 3D cell cultures to the Multi-MagPen Sleeve the recommended working volume per well is 100 – 200 μl . If the media volume is too low, the Multi-MagPen Sleeve will not touch or dip in the liquid and 3D cell cultures will not attach to it. If the media volume is too high, media will spill out the well as soon as the Multi-MagPen Sleeve will dip in.

1

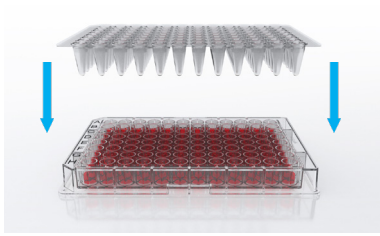
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If media must be removed from the wells, the microplate should be placed on the 96 Well Holding Drive (part of the 96 Well Bioprinting Kits; Item No. 655840/-41) to secure the 3D cell cultures at the bottom of the wells during pipetting.

Prepare Receiver Plate

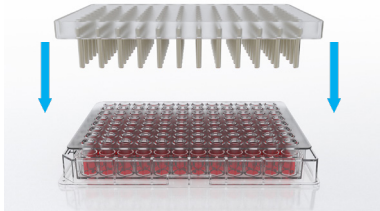
The receiver plate should contain the same liquid volume as the donor plate (100 – 200 μl /well). If the media volume is too low, the Multi-MagPen Sleeve will not touch or dip in the liquid and 3D cell cultures will not be transferred properly to the new plate. If the media volume is too high, media will spill out the well as soon as the Multi-MagPen Sleeve will dip in and 3D cell cultures might get lost.

2



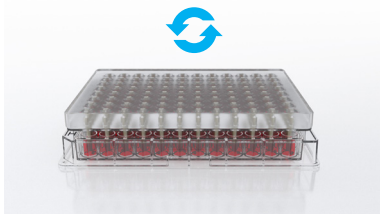
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Take off the lid of the donor plate (microwell plate containing 3D cell cultures or spheroids) and insert the sterile Multi-MagPen Sleeve in the wells of the plate.



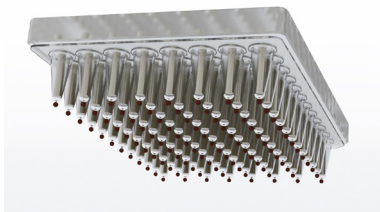
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Thereafter insert the magnetic Multi-MagPen Drive into the Multi-MagPen Sleeve.



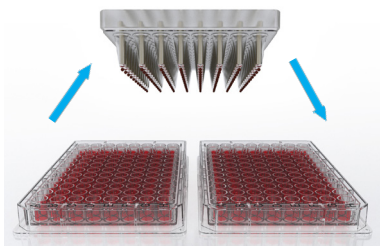
5

Carefully make 2-3 circular movements with the plate on the desk to facilitate 3D cell culture attachment to the Multi-MagPen Sleeve.



6

Gently lift the Multi-MagPen Drive with its sleeve off the plate. The magnetized 3D cell cultures will stick to the Multi-MagPen Sleeve and will be held by the magnetic force of the Multi-MagPen Drive during transfer.



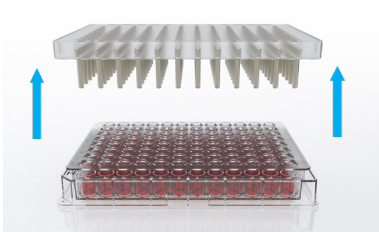
7

Place the combined Multi-MagPen Drive and Multi-MagPen Sleeve into the receiver plate or where you want to transfer the cells to.

WARNING

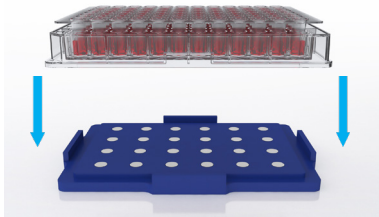


DO NOT place the receiver plate still containing the Multi-MagPen Drive in the Multi-MagPen Sleeve on the Holding Drive. Due to the magnetic force they can strongly attract each other, and separation of the components becomes difficult and may damage the magnet drives.



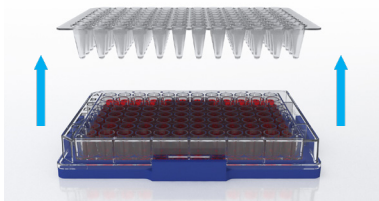
8

Take out the Multi-MagPen Drive from the Multi-MagPen Sleeve.



9

Place the receiver plate containing **only** the Multi-MagPen Sleeve on the 96 Well Holding Drive (part of the 96 Well Bioprinting Kits; Item No. 655840/-41). The 3D cell cultures will detach from the Multi-MagPen Sleeve by the magnetic force of the Holding Drive and settle on the bottom of the well.



10

Tap lightly with the flat of your hand on the Multi-MagPen Sleeve. This will mechanically detach the 3D cell cultures from the Multi-MagPen Sleeve in addition to the magnetic force of the Holding Drive. Remove the Multi-MagPen Sleeve and cover the receiver plate with its original lid.

4/ TROUBLESHOOTING

Problem	Probable Case	Solution
A few 3D cell cultures remain in the donor plate	Remaining 3D cell cultures did not adhere sufficiently to the Multi-MagPen Sleeve	Repeat step 3 to 9 If available, you can use the Single-MagPen (Item No. 657850) for the relocation of single 3D cell cultures
A few 3D cell cultures remain attached to the Multi-MagPen Sleeve	Remaining 3D cell cultures did adhere strongly to the Multi-MagPen Sleeve	Put the Multi-MagPen Sleeve again into the receiver plate (which is still located on the Holding Drive) and repeat step 9 and 10 in order to improve the detachment of the 3D cell cultures
Inconsistent 3D cell culture transfer from the donor plate to the receiver plate	Magnetization of the 3D cell culture is too low	Increase concentration of NanoShuttle
96 Well Holding Drive is not available	Customer has not purchased a 96 Well Bioprinting Kit	The Multi-MagPen Drive can serve to detach 3D cell cultures from the Multi-MagPen Sleeve. After removing the Multi-MagPen Drive from the Multi-MagPen Sleeve, position it under the receiver plate and to use its magnetic force to release the 3D cell cultures from the Multi-MagPen Sleeve

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